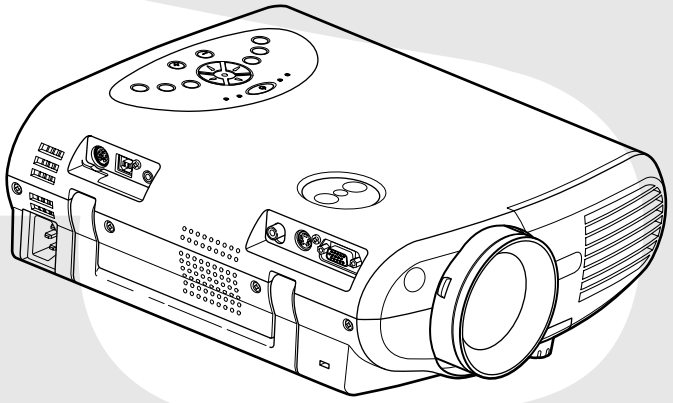
TOSHIBA

FILE NO. 330-200103

SERVICE MANUAL

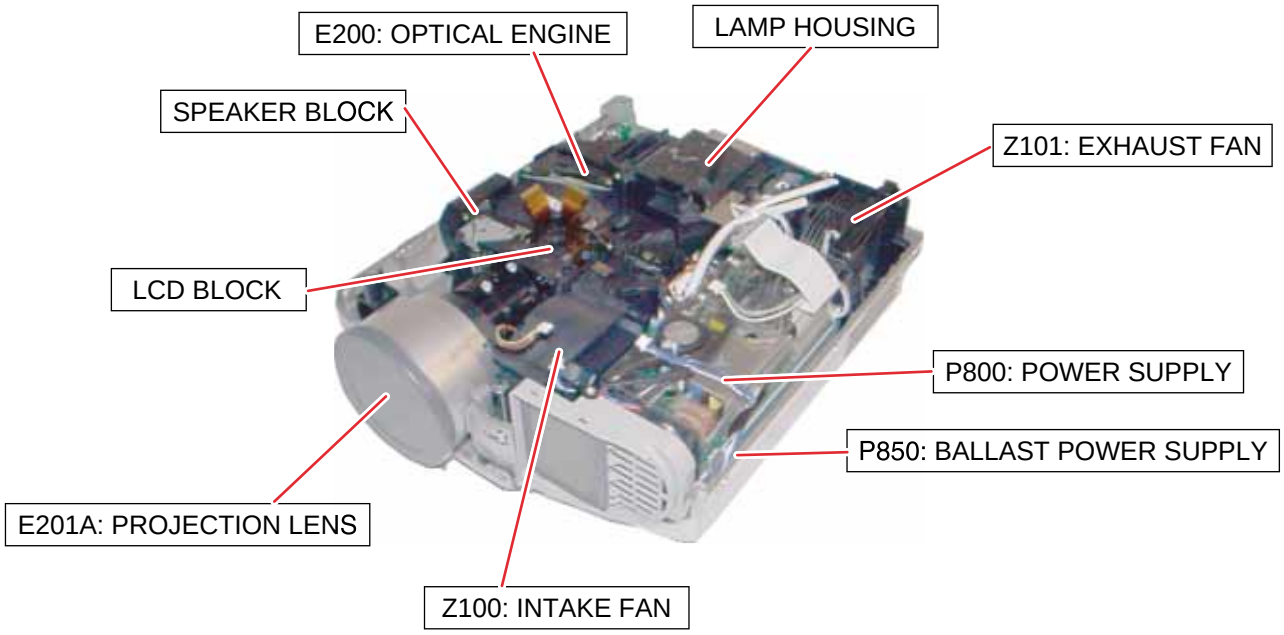
# 3LCD DATA PROJECTOR

# *TLP-250/251/250C/251C*
# *TLP-550/551/550C/551C*

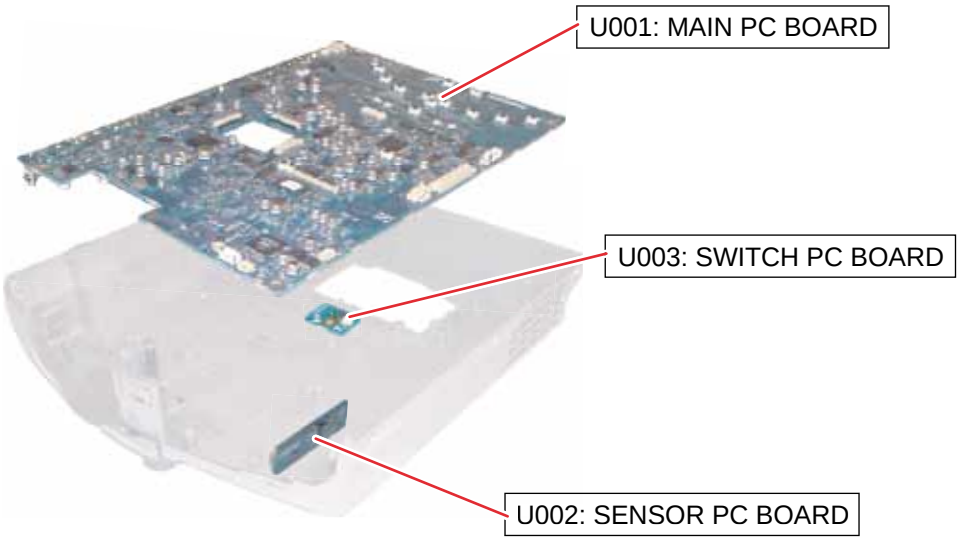


# SECTION 1
## PART REPLACEMENT AND ADJUSTMENT PROCEDURES

### 1. LOCATION OF MAIN PARTS




### 2. LOCATION OF PC BOARD

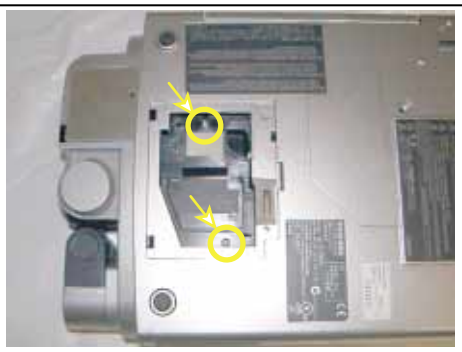


## CAUTIONS BEFORE SERVICING

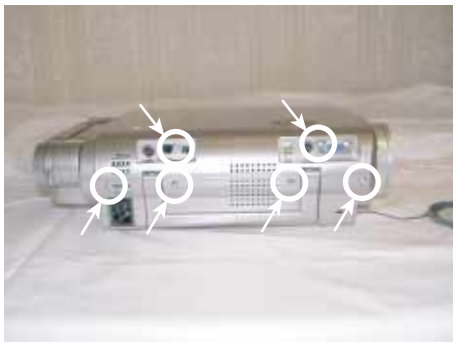
Electronic parts are susceptible to static electricity and may easily be damaged, so do not forget to take proper grounding treatment as required.
Many screws are used inside the unit. To prevent missing, dropping, etc. of the screws, always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

# 3. REPLACEMENT OF MECHANICAL PARTS

## 3-1. Lamp Assembly

| Step | Figure | Explanation |
|---|---|---|
| 1 | | Loosen 2 screws (M3 x 8).<br>These screws are retained with split washers. |
| 2 | | Remove the lamp cover. |
| 3 |  | Loosen 2 screws that secure the lamp module (M3 x 8).<br>These screws are retained with split washers. |
| 4 | | Lift the lamp module and slide out from the projector. |

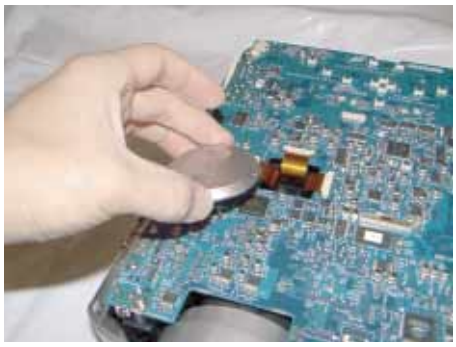
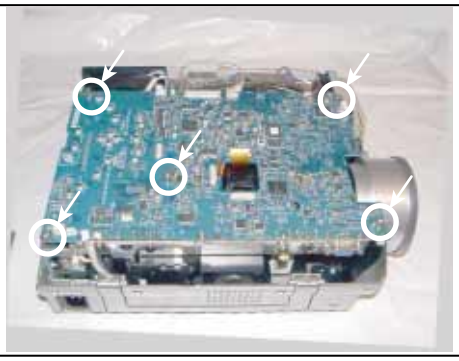
## 3-2. Top Cover

| Step | Figure | Explanation |
|---|---|---|
| 1 | | **[Left Side]**<br>Remove 3 screws (M3 x 6).<br>Screw : type [M-1]<br> |
| 2 |  | **[Right Side]**<br>Remove 6 screws (M3 x 6).<br>Screw : type [M-1]<br> |
| 3 | | **[Front]**<br>Slide front cover to the right. |
| 4 | | Remove front cover. |
| 5 | | Remove 1 screw (M3 x 6).<br>Screw : type [M-1]<br> |

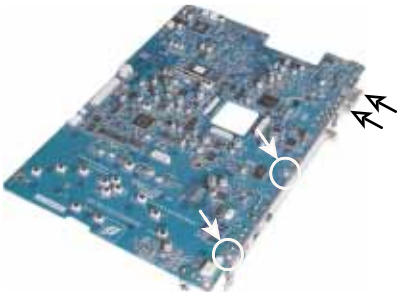
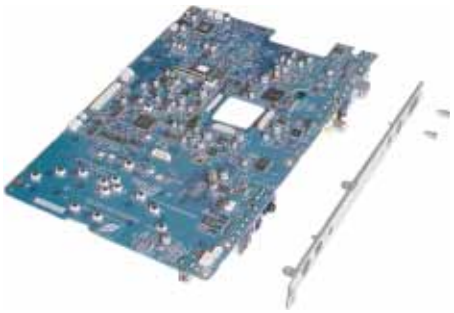
## 3-2. Top Cover (Continued)

| Step | Figure | Explanation |
|---|---|---|
| 6 | | **[Rear]**<br><br>Remove 1 screws (M2 x 6).<br><br>Screw : type [M-1]<br> |
| 7 | | Top cover can be removed by lifting left edge. |

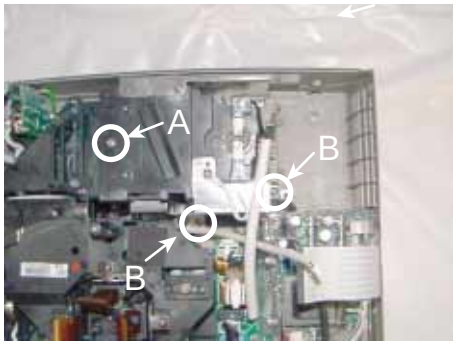
### 3-3. Main PC Board

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove lens shift dial. |
| 2 | | Remove all cables and connectors. |
| 3 |  | Remove 5 screws (M3 x 6).<br>Screw : type [M-1]<br> |
| 4 | | Remove 1 screws (M3 x 6).<br>Screw : type [M-1]<br> <br>[Note]<br>The screw here is also fixing the grand wire. |

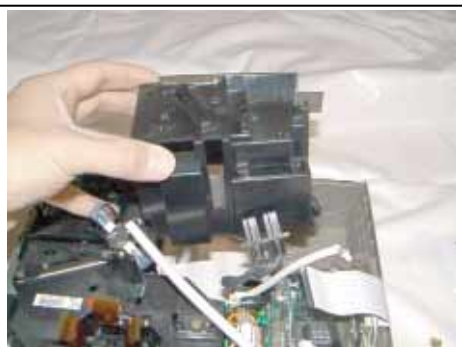
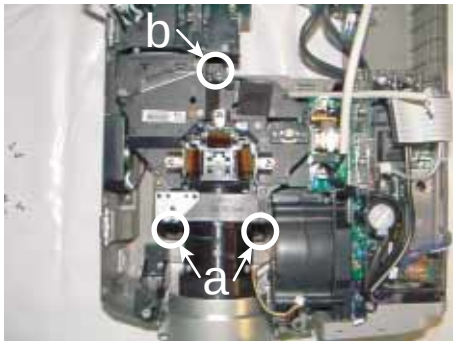
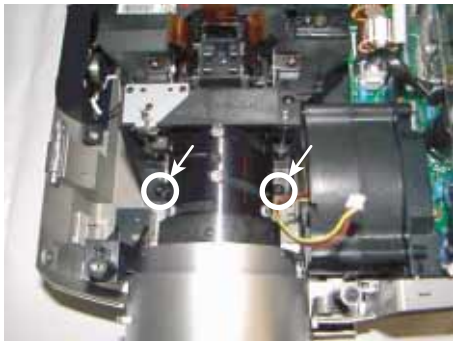
## 3-3. Main PC Board (Continued)

| Step | Figure | Explanation |
|---|---|---|
| 5 |  | Remove 2 screws (M3 x 6).<br>Screw : type [M-1]<br> <br>Remove 2 screws (M3 x 8).<br>Screw : type [M-10]<br> |
| 6 |  | Remove metal plate. |

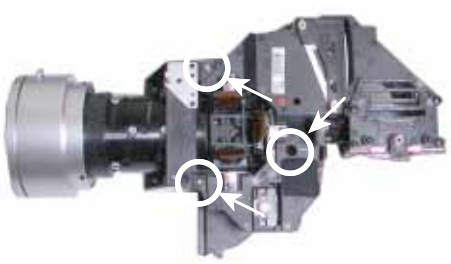
### 3-4. Optical Engine

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove 1 screw (M3 x 6).....A<br>Screw : type [M-1]<br> <br>Remove 2 screws (3 x 8).....B<br>Screw : type [M-2]<br> |
| 2 | | Remove 2 screws (3 x 8)<br>Screw : type [M-2]<br> |
| 3 | | Remove Thermal switch. |
| 4 | | Remove metal plate. |
| 5 | | Remove 2 screws (3 x 8)<br>Screw : type [M-2]<br> |

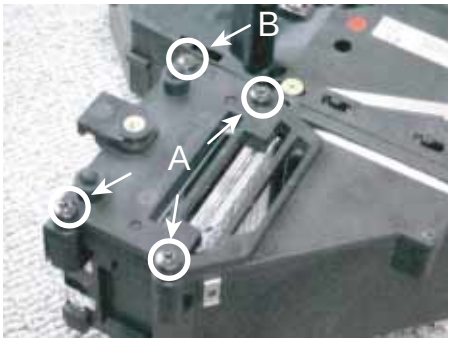
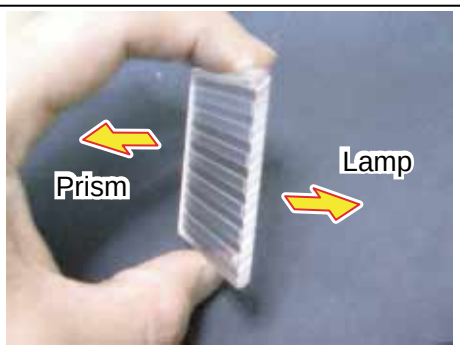
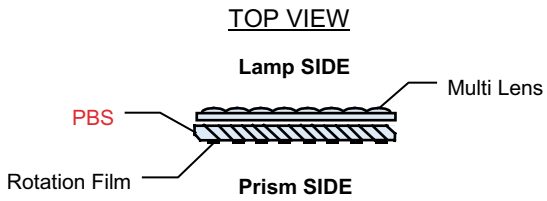
## 3-4. Optical Engine (Continued)

| Step | Figure | Explanation |
|---|---|---|
| 6 |  | Remove lamp housing. |
| 7 |  | Remove 3 screws (M3 x 15).<br>Screw : type [M-4]<br> |
| 7a |  | |
| 7b | | |

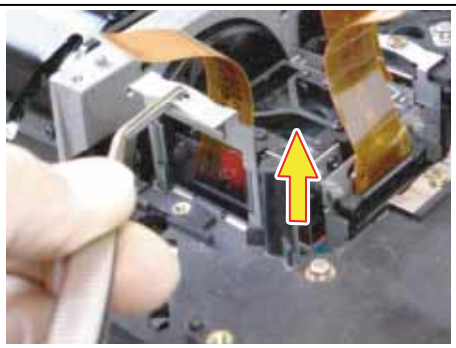
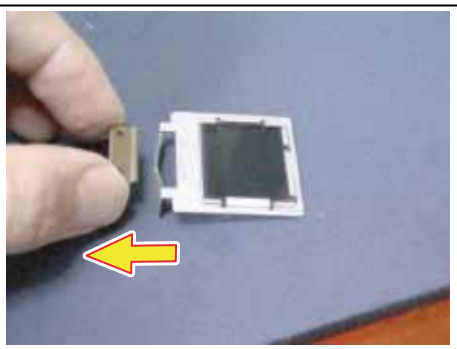
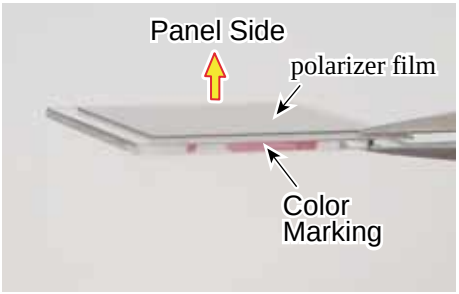
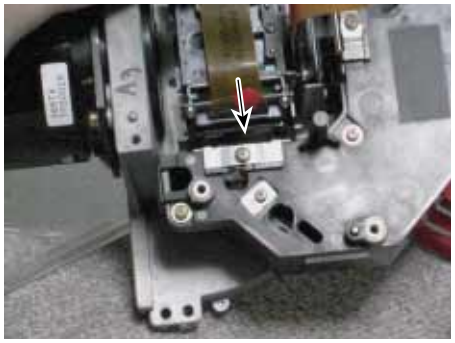
## 3-4. Optical Engine (Continued)

| Step | Figure | Explanation |
|---|---|---|
| 8 |  | Remove 3 screws (M3 x 8) .<br>Screw : type [M-2]<br> |
| 9 | <br>Sub frame<br> <br>Main frame | Separate the main frame and sub frame from the engine block. |

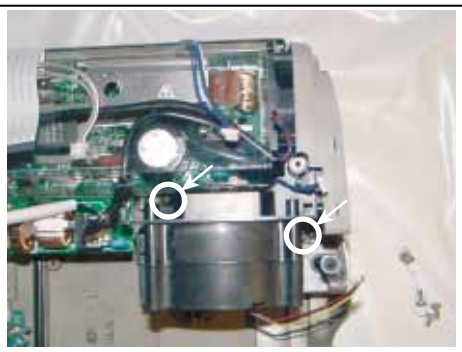
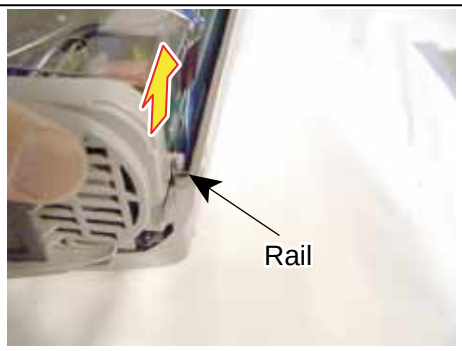
## 3-5. MULTI-PBS (Polarizing Beam Splitter)

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove 3 screws (M3 x 15) ....A<br>Screw : type [M-8]<br> <br>Remove 1 screws (M2.5 x 15) ....B<br>Screw : type [M-9]<br> |
| 2 | | Press the Multi-PBS up from cooling space. |
| 3 | | Remove the Multi-PBS. |
| 4 |  | [Note]<br>Make sure the direction of the PBS when you install.<br>  |

## 3-6. Polarized Plate

| Step | Figure | Explanation |
|---|---|---|
| 1 | | Remve the one screw. |
| 2 |  | Remove the stopper. |
| 3 |  | Remove the holder and polarized plate. |
| 4 |  | [Note]<br>The film side must be faced to the LCD panel when installing and the color must be related with the color of LCD panel. |
| 5 |  | Tighten a screw in the position where 100% black image screen gets the darkest. |

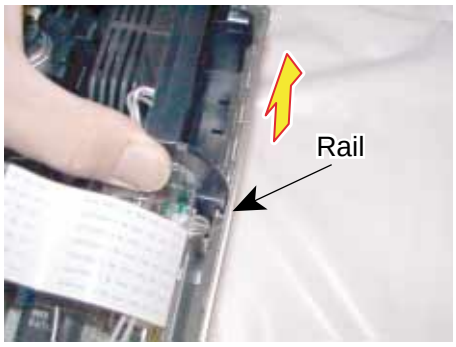
## 3-7. Intake Fan

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove 2 screw (3 x 8).<br>Screw : type [M-2]<br> |
| 2 |  | Remove intake fan block from the bottom cabinet.( It pulls up along with a rail. ) |
| 3 | | Remove filter block from the bottom cabinet. |
| 4 | | The filter is split like this. |
| 5 | | Remove 2 screws (3 x 8).<br>Screw : type [M-2]<br> |

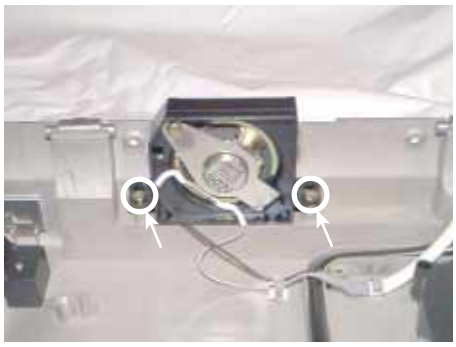
## 3-7. Intake Fan (Continued)

| Step | Figure | Explanation |
|---|---|---|
| 6 | | Remove 2 screw (3 x 47).<br>Screw : type [M-5]<br> |
| 7 | | The Intake fan block is split like this. |

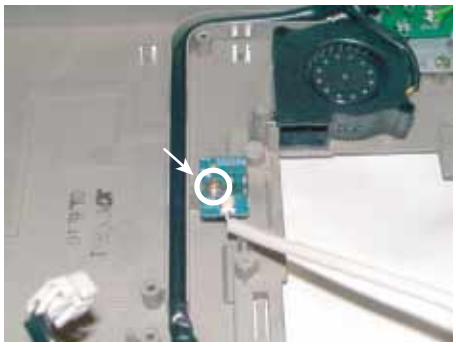
## 3-8. Exaust Fan

| Step | Figure | Explanation |
|---|---|---|
| 1 | | Remove 1 screw (3 x 8).<br>Screw : type [M-2]<br> |
| 2 |  | Remove intake fan block from the bottom cabinet.( It pulls up along with a rail. ) |
| 3 | | Remove 2 screws (3 x 15).<br>Screw : type [M-6]<br> |
| 4 | | The exaust fan block is split like this. |

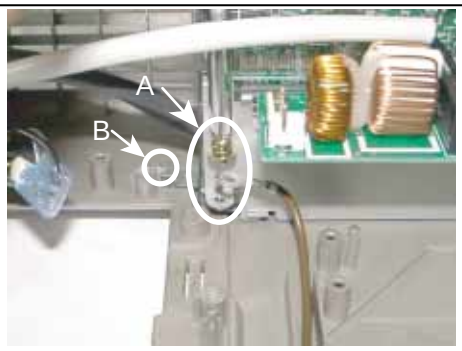
## 3-9. Speaker Block

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove 2 screws (3 x 8).<br>Screw : type [M-2]<br> |
| 2 | | Remove 1 screw (3 x 8).<br>The speaker will be removed like this.<br>Screw : type [M-2]<br> |

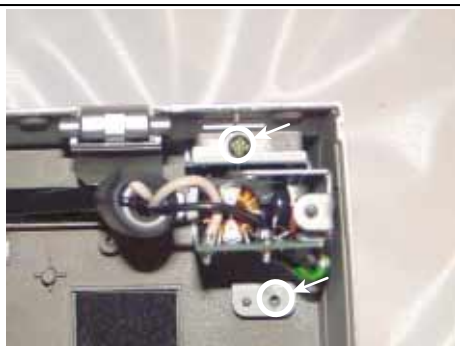
## 3-10. Switch PC Board

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove 1 screws (3 x 8).<br>Screw : type [M-2]<br> |
| 2 | | [Note]<br>The safety interlock switch is pushed when the lamp cover is replaced. |

## 3-11. Power Supply

| Step | Figure | Explanation |
|---|---|---|
| 1 | | Disconnect the cable from the AC inlet. |
| 2 |  | A : Remove 1 screw (M3 x 5).<br>Screw : type [M-3]<br> <br>B : Remove 1 screw (3 x 8).<br>Screw : type [M-2]<br> |
| 3 | | Remove 1 screw (3 x 8).<br>Screw : type [M-2]<br> |
| 4 | | Lift up back side of the power unit . |
| 5 | | Remove 2 hook from the bottom cabinet in the direction of this arrow. |

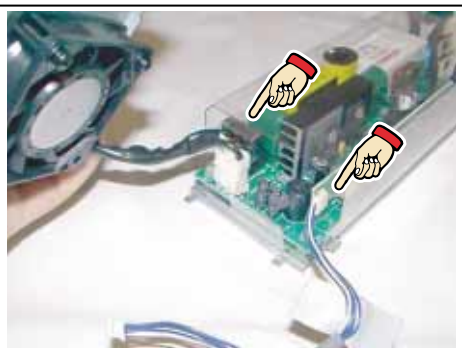
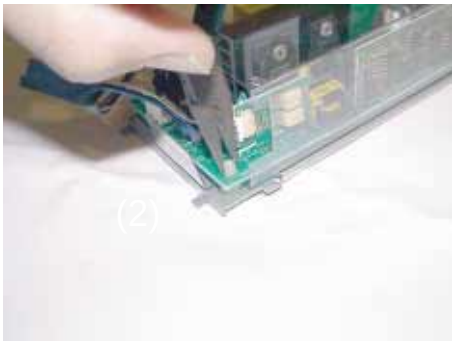
## 3-11. Power Supply (Continued)

| Step | Figure | Explanation |
|---|---|---|
| 6 |  | Remove 2 screws (3 x 8)<br>Screw : type [M-2]<br> |
| 7 | | Remove EMC filter unit. |

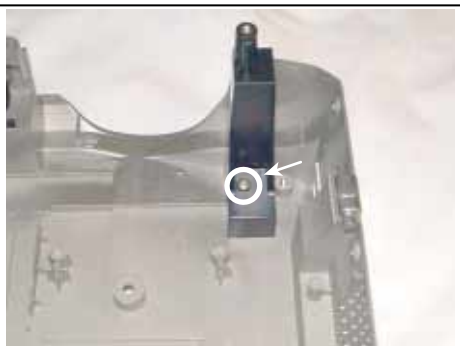
## 3-12. Ballast power Supply

| Step | Figure | Explanation |
|---|---|---|
| 1 | | Remove black tape. |
| 2 | | Remove 2 hooks in the direction of this arrow. |

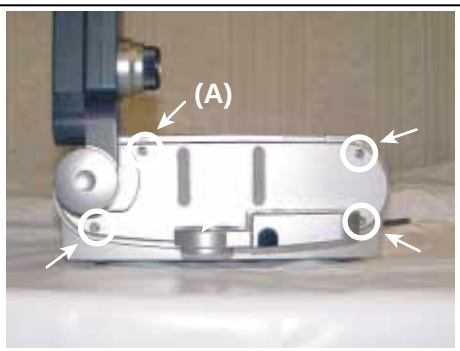
## 3-12. Ballast power Supply (Continued)

| Step | Figure | Explanation |
|---|---|---|
| 3 | | Lift up the main power supply unit. |
| 4 |  | Disconnect the power supply cable and cntrol cable. |
| 5 | | Release 4 P.C. board holder. |
| 6 |  | Release P.C. board holder by using tweezers. |
| 7 | | Ballast power supply block is split like this. |

### 3-13. PCB Holder

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove 1 screw (3 x 8).<br>Screw : type [M-2]<br> |

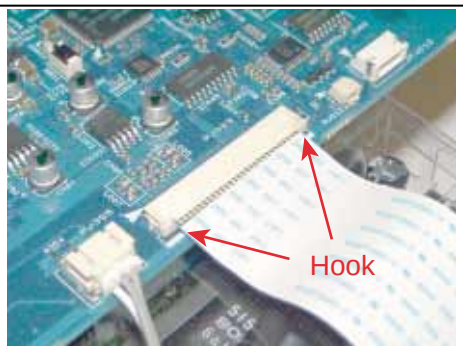
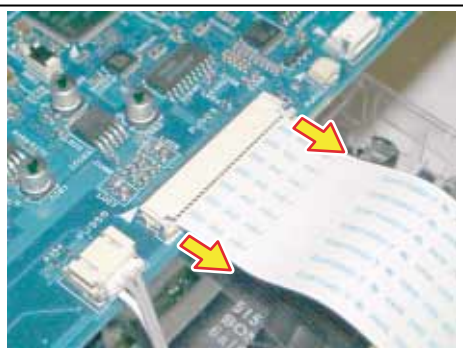
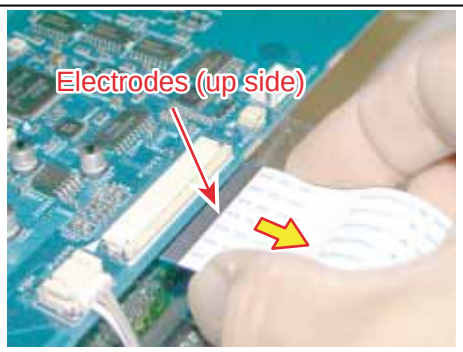
### 3-14. Document camera (How to remove from the main body)

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Remove 5 screws (M3 x 6).<br>Screw : type [M-1]<br> <br>[Note]<br>Please remove the screw (A) last. Then, support the camera block by hand, otherwise it falls. |
| 2 | | Disconnect the connector from the main body.<br><br>[Note]<br>For disassembly of the document camera, refer to page 3-6. |

## 3-15. Screws for Mechanical Patrs

| Type | Form | Size | Location |
|---|---|---|---|
| M-1 | | M3 x 6 | Top Cover (11), Main PCB (8), Document camera (5) and Lamp House (1) |
| M-2 | | 3 x 8 | Power Supply and Ballast Power Supply (4), Ballast cable connector (2), Intake FAN (4), Switch PCB(1), Lamp House(5), Exhaust FAN (1), Optical Engine(3), Speaker Block (3) and PCB Holder(1) |
| M-3 | | 3 x 6 | Power Supply Earth Wire(1) |
| M-4 | | 3 x 12 | Optical Engine (3) |
| M-5 | | 3 x 47 | Intake FAN (2) |
| M-6 | | 3 x 12 | Exaust FAN (2) |
| M-7 | | 2 x 4 | Camera Cover (3) |
| M-8 | | 3 x 15 | Optical Engine PBS Cover (3) |
| M-9 | | 2.5 x 15 | Optical Engine PBS Cover (1) |
| M-10 | | M3 x 8 | Main PCB (2) |

## 3-16. How to disconnect FFC/FPC Connector

| Step | Figure | Explanation |
|---|---|---|
| 1 |  | Conformity of Location number.<br>MAIN PCB: PJ701 |
| 2 |  | Release Two hooks.<br><br>[Note]<br>Hooks stop on the way. Please do not pull out by superfluous power.) |
| 3 |  | FFC/FPC cable can be disconnected. |

# 4. ELECTRICAL ADJUSTMENT

## 4-1. Preparation

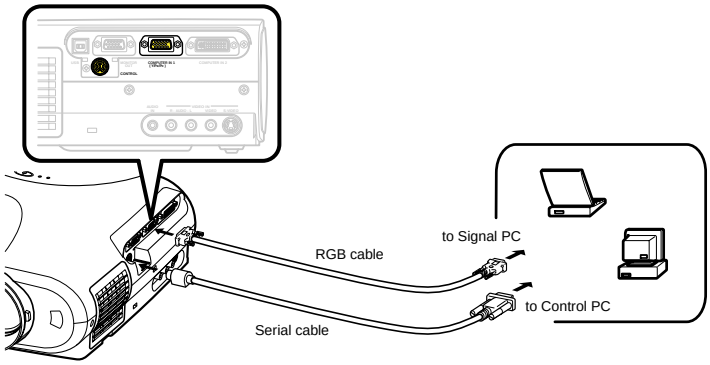
### < Test Equipments and Jigs >

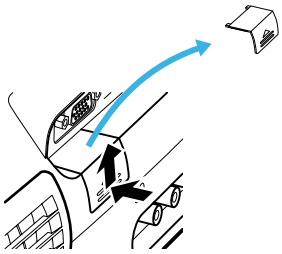
- Personal computer (Windows P/C, OS:windows 95/98)
- Adjustment software
  (SINGO98.exe, FieldAdjust.exe)
- RGB cable, Serial control cable (for RS-232C)

### < Connection and Setting of Personal Computer >

**(1) Connection of personal computer**

Connect a computer as shown in following Fig. 1-4-1.
Use the supplied serial control cable for connection.



Remove the RS232C cover.

Fig. 1-4-1

**(2) Shading adjustment software**

When the shading adjustment software (FieldAdjust.exe) is started, screen like the following image (Fig. 1-4-2) appears.

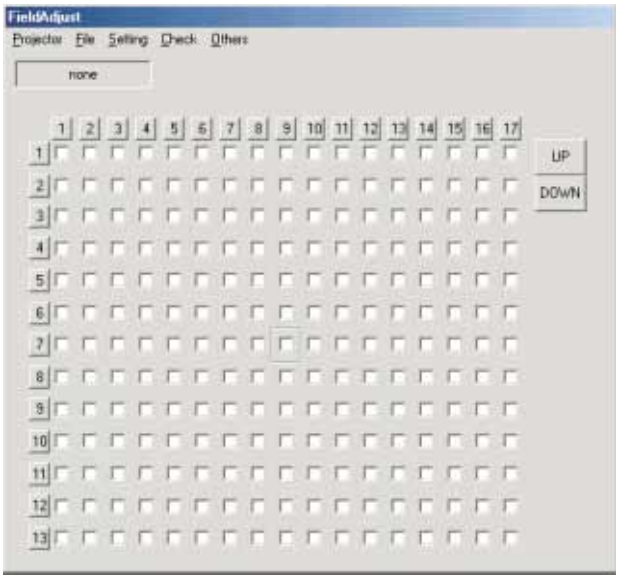



Fig. 1-4-2

## 4-2. Shading adjustment software

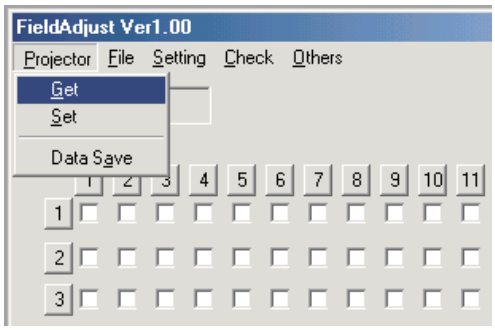
### 1. When DRIVE PCB is exchanged.

**Step1. Get shading data from old Drive PCB.**
**Step2. Save the data to PC memory.**
**Step3. Exchange the Drive PCB.**
**Step4. Set the old data to new Drive PCB.**

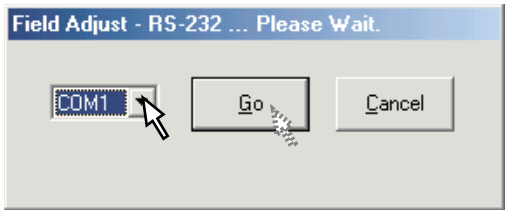
### (Brfore Exchanging Drive PC Board)

#### 1-1 Get the shading data from the projector

**(1) Select [get] from [Projector] menu.**



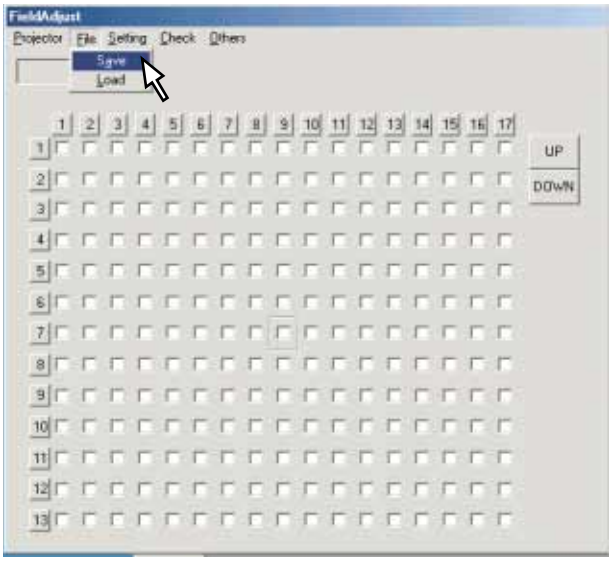

**(2) Select commucation port and press [Go] button.**



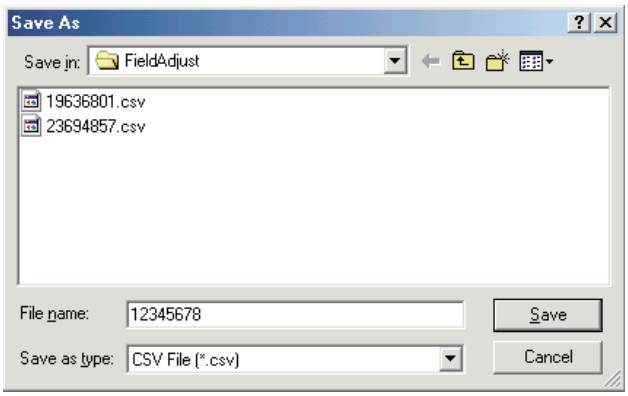

**(3) After getting the shading data, the following message appired. Press [OK] button.**

#### 1-2 Save the original shading data to PC

**(1) Select [Save] from [File] menu.**



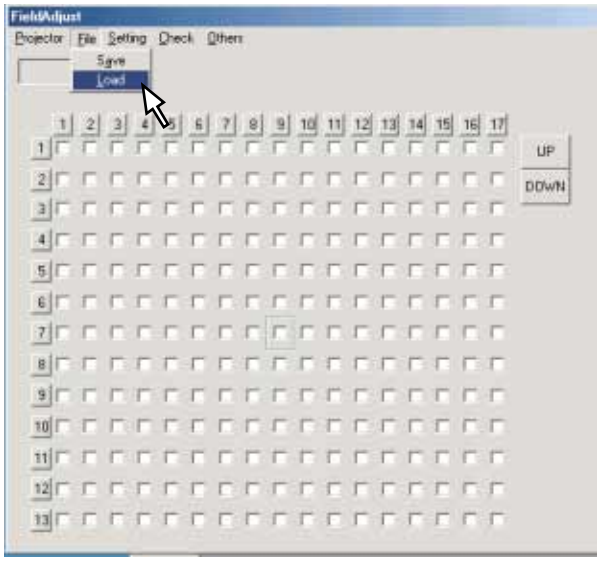

**(2) Input file name and press [Save] button.**



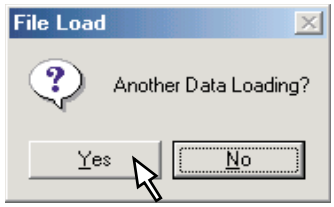

### (After Exchanging Drive PC Board)

#### 1-3 Set the shading data to the projector

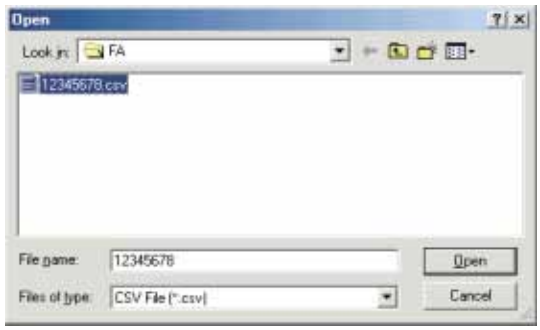
**(1) When you load the data from PC, select [Load] form [File] menu.**



(2) Press [Yes] button.

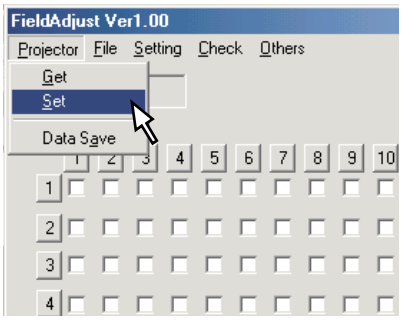



(3) Input file name and press [Open] button.

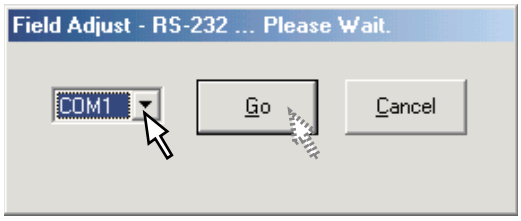



### 1-4 Set the shading data to the projector

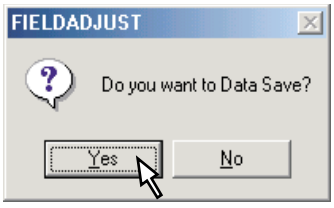
(1) Select [set] from [Projector] menu.




(2) Select commucation port and press [Go] button.




(3) If you save data to the projector press [Yes] button.

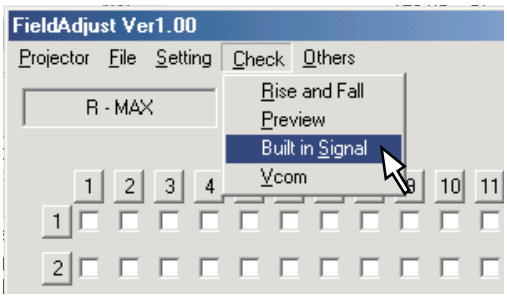



## 2. When LCD Panels are exchanged.

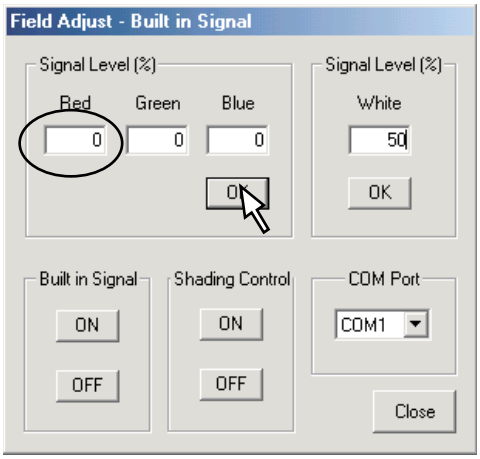
Step1. Adjust the VCOM data (front and celing) .
This adjustment makes the flicker of a panel into the minimum.
Step2. Adjust the Shading data.
Step3. Set the new data to the Projector.

### 2-1 Adjust the VCOM data

(1) Select [Built in Signal] from [Check] menu.
This menu can output the signal pattern built in the projector.

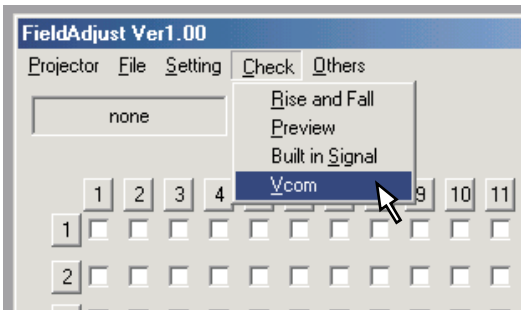



(2) Set the color level and press [OK] button
(When you adjust Red VCOM, set red level 100%.)

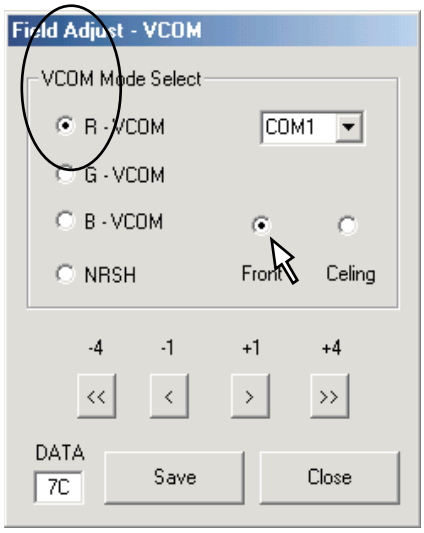



After setting press [Close] button.

(3) Select [Vcom] from [Check] menu.

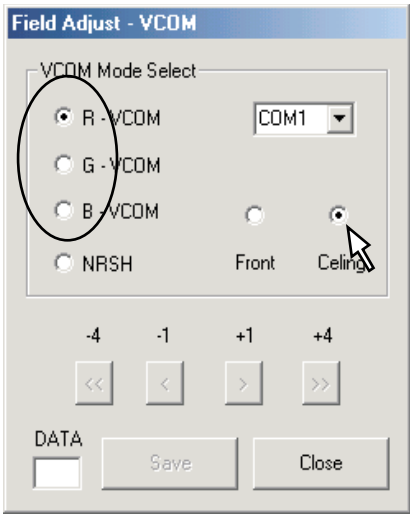


**(4) Select [Front] button first, and select R,G or B button.**
**(When you adjust the R level, then select R-VCOM**



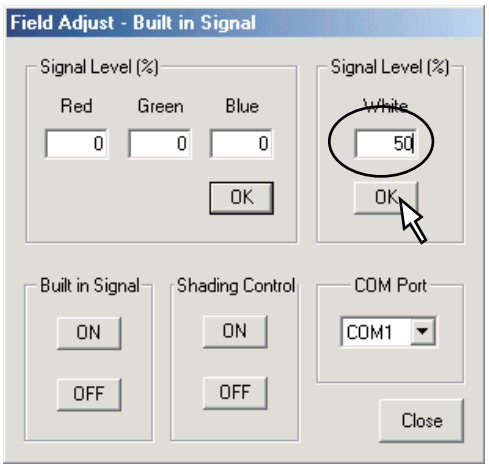

**(5) Push [+1] or [-1] button, change data and look for the point with which a flicker serves as the minimum.**
**If you push [+4] or [-4] button, the data moves fast.**

**(6) Nxt, select [Celing] button, and select R,G or B button.**

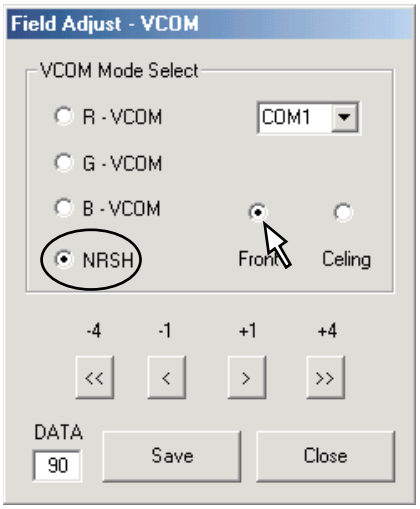



**(7) After adjusting, push [Save] button .**

**(8) Change the internal signal patern.**
**Set the white level 50% and press [OK] button.**




**(9) Select [Front] button, and select [NRSH] button.**

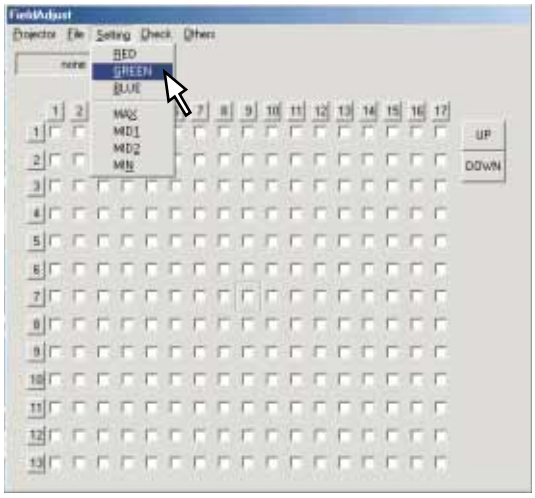



**(10) Push [+1] or [-1] button, change data and look for the point with which a vertical stripe serves as the minimum.**
**If you push [+4] or [-4] button, the data moves fast.**

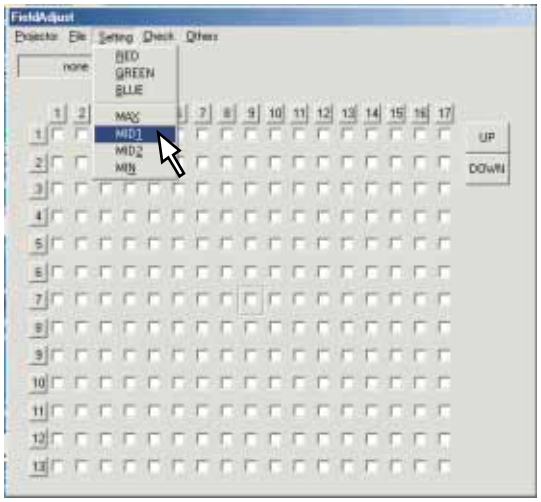
**(11) After adjusting, push [Save] button .**

## 2-2 Adjust the shading data

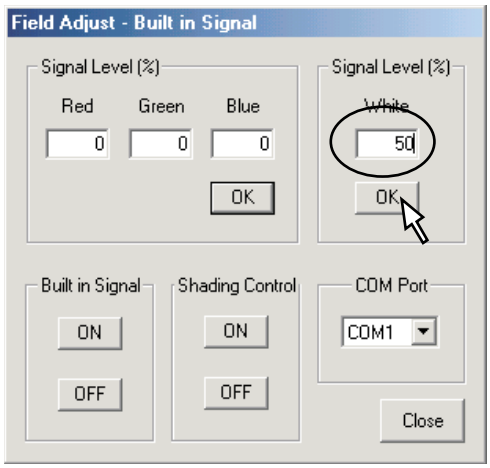
**(1) Select adjusting color (Red/Green/Blue) form the [Setting] menu.**




**(2) Select adjusting level (Max/Mid1/Mid2/Min) form the [Setting] menu.**




**(3) Select the internal signal patern. (White Patern) Set the following level and press [OK] button.**



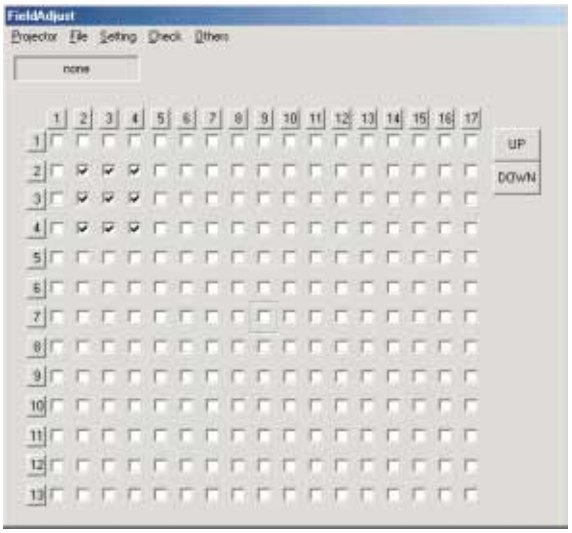

**After setting push [Close] button.**

**Note:**
**You must change the builtin signal level corresponding to the chosen level.**

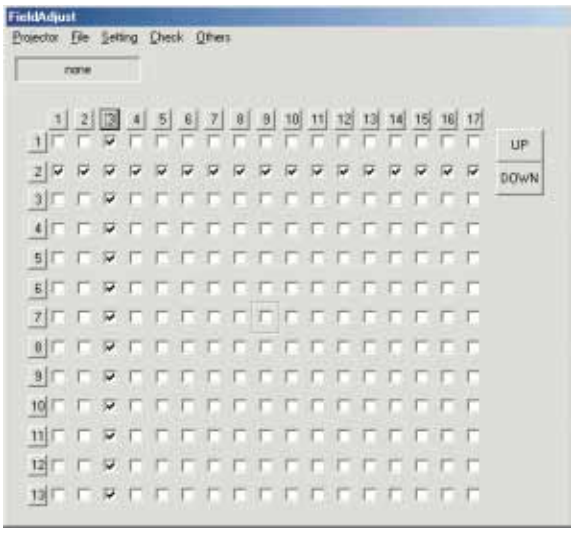
**Max : 75%**
**Mid1 : 50%**
**Mid2 : 26%**
**Min : 11%**

**Example:**
**If you select [Mid1], set the builtin signal level 40%.**

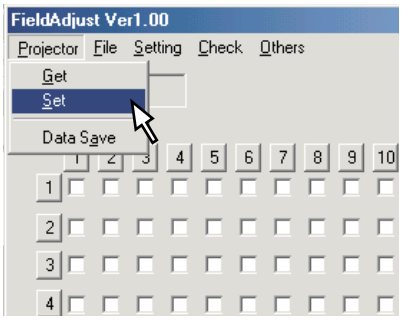
**(4) Select the adjusting area (check box). Click the [up] or [down] button to change the shading data.**




**(Note) When a number button is chosen, a straight line can be chosen.**



**(5) Select [Set] from the [Projector] menu.**



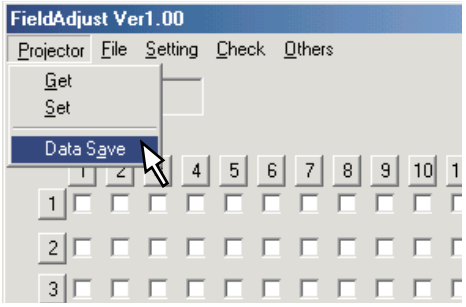

**(6) After sending the all data, the following mesage appired. Click the [OK] button.**

**(7) The same adjustment is made in othe colors and each four levels.**

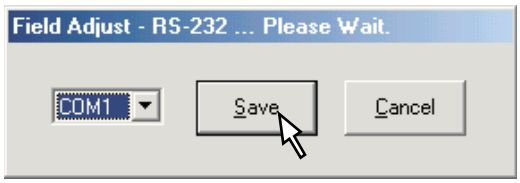
**(8) Repeat the step of (1) to (7) until shading will be in a good state.**

## 2-3 Set the shading data to the projector

**(1) Select [Data Save] form the [Projector] menu.**




**(2) Push [Save] button.**



# SECTION 2
# SERVICING DIAGRAMS

## 1. TROUBLE SHOOTING

| CAUSE | CHECK POINT | CHEK ITEM | JUDGE |
|---|---|---|---|
| Power is not on | Flat cable of Power supply (disconnect PJ003) | Standby voltage<br><br>(See page 2-3) | (NG)<br>→ Power supply is NG.<br><br>(OK)<br>→ Check next step. |
| | PJ003(connect PJ003) | Standby voltage | (NG)<br>→ Main PCB is NG,<br>or any cable connection is NG. |
| Power off during use | LED Display | Lighting pattern | See 2-2 |
| Lamp is not on | Lamp | Any damage inside or not | (Damaged)<br>→ Change with new lamp.<br><br>(Not Damaged)<br>→ Check Lamp cover or lamp power supply.<br>However, even if the lamp has no damage, there is the case it has trouble also. |
| No image | "No Signal" OSD message | Indicated or not | (Indicated)<br>→ RGB/Video terminal is NG,<br>or Main PCB is NG.<br><br>(Not Indicated)<br>→ Check next step. |
| | Test signal<br>R<br>G<br>B | Signal shape | (Correct)<br>→ LCD panel is NG,<br>or PJ851/PJ901/PJ951 is NG.<br><br>(Incorrect)<br>→ Main PCB is NG. |

ATTENTION

LED displays various error pattern. (See 2-2)
Be careful because the same error occurs in the bad contact of the cable as well.
LED error combination display always show the latest error.

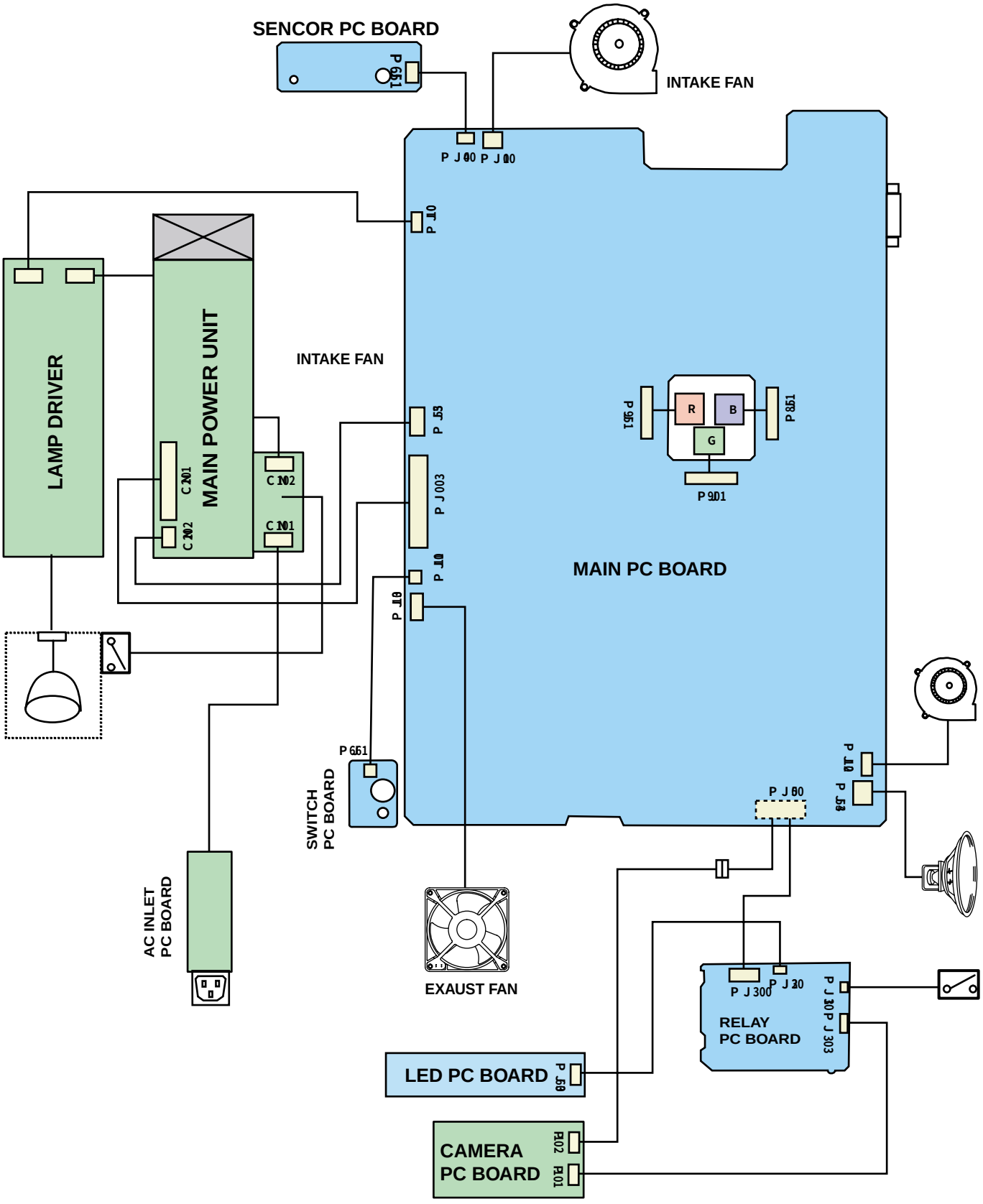
## 2. LED DISPLAY (Problems Shown on LED Indicator Combination)

| Error Cord No. | Status of Indicator Light | | | | Cause and Trouble | Solution |
|---|---|---|---|---|---|---|
| | FAN | TEMP | LAMP | ON | | |
| 00 | (OFF) | (OFF) | (OFF) | (OFF) | Standby-power is not on<br>> There's a problem with the power unit or system microcomputer. | Check the power unit.<br>Check the connector.<br>Check the main PC board. |
| 01 | (GREEN) | (OFF) | (RED) | (RED) | The lamp went out during use or the lamp will not switch on<br>> The bulb has reached the end of it's life. | Change new lamp.<br>There may also be trouble in ballast power supply. |
| 02 | (GREEN) | (OFF) | (RED flashing) | (RED) | | |
| 03<br>04 | (GREEN) | (OFF) | (Orange flashing) | (RED) | The power turns off<br>>Trouble with the Lamp cover | The lamp cover is not properly attached. Unplug the power cord and reattach the lamp cover. |
| 05 | (GREEN) | (Orange) | (OFF) | (RED) | The power turns off or does not come on<br>> The inside is too hot, or the projector has been working in an area of high temperature.<br>Error Cord<br>05: Near the Lamp housing<br>06: Near the Intake fan<br>07: Polarized filter | Place the projector correctly so the intake and exhaust fan's holes are not covered.<br>Turn the projector off, and leave it for a while, and turn it on again.<br>Clean the air filter. |
| 06 | (GREEN) | (RED) | (OFF) | (RED) | | |
| 07 | (GREEN) | (Orange flashing) | (OFF) | (RED) | | |
| 09 | (RED) | (OFF) | (OFF) | (RED) | The power turns off or does not come on<br>> Trouble with the cooling fans.<br>Error Cord<br>09: Lamp fan<br>10: Exaust fan<br>11: Intake fan | Check the each cooling fan. |
| 10 | (Orange flashing) | (OFF) | (OFF) | (RED) | | |
| 11 | (RED flashing) | (OFF) | (OFF) | (RED) | | |
| 12 | (GREEN) | (OFF) | (Orange) | (RED) | The power turns off<br>> System micon error. | |
| 13 | (GREEN) | (Orange) | (GREEN) | (RED) | Error Cord<br>12: Device Error<br>13: Status Error | Wait for two minutes, and turn on the power again. |

NOTE

In each mode shown with this color, the projector returns to the standby mode after error indication for about 2 minutes.

## 3. WIRING BLOCK DIAGRAM



# 4. CONNECTOR PIN ASSIGNMENT

PJ001 (MAIN) ⟷ INTAKE FAN

| | | |
|---|---|---|
| 1 | FAN4 CONTROL V | +6 to +12V |
| 2 | GND | 0V |
| 3 | FAN4 PULSE | +3.3V(Pulse) |

PJ003 (MAIN) ⟷ POWER SUPPLY

| | | |
|---|---|---|
| 1 | +4.5V | +4.5V |
| 2 | +4.5V | +4.5V |
| 3 | +4.5V | +4.5V |
| 4 | +4.5V | +4.5V |
| 5 | GND | 0V |
| 6 | GND | 0V |
| 7 | GND | 0V |
| 8 | GND | 0V |
| 9 | +6.5V | +6.5V |
| 10 | +6.5V | +6.5V |
| 11 | +6.5V | +6.5V |
| 12 | +6.5V | +6.5V |
| 13 | GND | 0V |
| 14 | GND | 0V |
| 15 | GND | 0V |
| 16 | GND | 0V |
| 17 | -9V | -9V |
| 18 | GND | 0V |
| 19 | +15V | +15V |
| 20 | +15V | +15V |
| 21 | GND | 0V |
| 22 | GND | 0V |
| 23 | +17V | +17V |
| 24 | GND | 0V |
| 25 | LAMP PWR CONT | N.C. |
| 26 | AC FREQ | +5V(Pulse) |
| 27 | FAN PW | 0V(ON)/5V(OFF) |
| 28 | GND | 0V |

PJ004 (MAIN) ⟷ PJ651(SENSOR)

| | | |
|---|---|---|
| 1 | PW+3.3V | +3.3V |
| 2 | PWS3V-SCL | +3.3V/0V |
| 3 | PWS3V-SDA | +3.3V/0V |
| 4 | GND | 0V |

PJ006 (MAIN) ⟷ PJ300(RELAY)+CAMERA UNIT

| | | |
|---|---|---|
| 1 | CAM-Y | +0.93Vp-p |
| 2 | GND | 0V |
| 3 | CAM-Cr | +1.15Vp-p |
| 4 | CAM-Cb | +1.15Vp-p |
| 5 | CAM-HD | +3.2Vp-p |
| 6 | GND | 0V |
| 7 | CAM-Vd | 1 |
| 8 | GND | 0V |
| 9 | GND | 0V |
| 10 | GND | 0V |
| 11 | N.C. | 0V |
| 12 | +17V | +17V |
| 13 | GND | 0V |
| 14 | GND | 0V |
| 15 | CAM-Rx | +/-7V(data) |
| 16 | +6.5V | +6.5V |
| 17 | CAM-Tx | +/-7V(data) |
| 18 | CAM-DET | 0V |
| 19 | CAM-REM | +5V |
| 20 | CAM-LIGHT | 0V(OFF)/5V(ON) |
| 21 | CAM-PWR | 0V(OFF)/5V(ON) |
| 22 | CAM-KEY0 | 0V(ON)/5V(OFF) |
| 23 | CAM-LED | 0V(OFF)/5V(ON) |
| 24 | CAM-KEY1 | 0V(ON)/5V(OFF) |
| 25 | N.C. | 0V |
| 26 | N.C. | 0V |
| 27 | CAM-ARM | 0V(down)/5V(up) |
| 28 | CAM-KEY3 | 0V(ON)/5V(OFF) |
| 29 | CAM-KEY5 | 0V(ON)/5V(OFF) |
| 30 | CAM-KEY4 | 0V(ON)/5V(OFF) |

PJ010 (MAIN) ⟷ LAMP DRIVER

| | | |
|---|---|---|
| 1 | LAMP-ERROR | 0V(Normal)/5V(Error) |
| 2 | GND | 0V |
| 3 | FAN+5V | +5V |
| 3 | LAMP-PWR | 0V(ON)/5V(OFF) |
| 3 | N.C. | 0V |

PJ011 (MAIN) ⟷ PJ661(SWITCH)

| | | |
|---|---|---|
| 1 | COVER | 0V(Close) |
| 2 | GND | 0V |

PJ012 (MAIN) ⟷ PBS FAN

| | | |
|---|---|---|
| 1 | FAN DRIVE | +6 to +12V |
| 2 | GND | 0V |
| 3 | FAN4 PULSE | +3.3V(Pulse) |

PJ013 (MAIN) ⟷ EXAUST FAN

| | | |
|---|---|---|
| 1 | FAN DRIVE | +6 to +12V |
| 2 | GND | 0V |
| 3 | FAN4 PULSE | +3.3V(Pulse) |
| 4 | N.C. | 0V |

PJ300 (RELAY) ⟷ PJ006 (MAIN)

| | | |
|---|---|---|
| 1 | N.C. | 0V |
| 2 | +17V | +17V |
| 3 | GND | 0V |
| 4 | GND | 0V |
| 5 | CAM-Rx | +/-7V(data) |
| 6 | +6.5V | +6.5V |
| 7 | CAM-Tx | +/-7V(data) |
| 8 | CAM-DET | 0V |
| 9 | CAM-REM | +5V |
| 10 | CAM-LIGHT | 0V(OFF)/5V(ON) |
| 11 | CAM-PWR | 0V(OFF)/5V(ON) |
| 12 | CAM-KEY0 | 0V(ON)/5V(OFF) |
| 13 | CAM-LED | 0V(OFF)/5V(ON) |
| 14 | CAM-KEY1 | 0V(ON)/5V(OFF) |
| 15 | N.C. | 0V |
| 16 | N.C. | 0V |
| 17 | CAM-ARM | 0V(down)/5V(up) |
| 18 | CAM-KEY3 | 0V(ON)/5V(OFF) |
| 19 | CAM-KEY5 | 0V(ON)/5V(OFF) |
| 20 | CAM-KEY4 | 0V(ON)/5V(OFF) |

PJ301 (RELAY) ⟷ ARM SWITCH

| | | |
|---|---|---|
| 1 | CAM-ARM | +5V |
| 2 | GND | 0V |

PJ302 (RELAY) ⟷ PJ360(LED)

| | | |
|---|---|---|
| 1 | +15V | +15V |
| 2 | GND | 0V |
| 3 | GND | 0V |

PJ303 (MAIN) ⟷ CAMERA UNIT

| | | |
|---|---|---|
| 1 | +9V | +9V |
| 2 | GND | 0V |
| 3 | +4V | +4V |
| 4 | N.C. | 0V |
| 5 | CAM-Rx | +/-7V(data) |
| 6 | CAM-Tx | +/-7V(data) |

PJ354 (MAIN) ⟷ SPEAKER

| | | |
|---|---|---|
| 1 | SPEAKER OUT | +1V |
| 2 | GND | 0V |

PJ355 (MAIN) ⟷ ???

| | | |
|---|---|---|
| 1 | +15V | +15V |
| 2 | GND | 0V |
| 3 | GND | 0V |

PJ851,PJ901,PJ951 (DRIVE) ⟷ LCD PANEL

| | | |
|---|---|---|
| 1 | GND | 0 V |
| 2 | DIRY | 0 /15.5V |
| 3 | DY | 0 to +15.5V(Pulse) |
| 4 | LCCOM R/G/B | |
| 5 | NRS | 2 to +7V |
| 6 | RV12/GV12/BV12 | 2 to +12V |
| 7 | RV11/GV11/BV11 | 2 to +12V |
| 8 | RV10/GV10/BV10 | 2 to +12V |
| 9 | RV9/GV9/BV9 | 2 to +12V |
| 10 | RV8/GV8/BV8 | 2 to +12V |
| 11 | RV7/GV7/BV7 | 2 to +12V |
| 12 | RV6/GV6/BV6 | 2 to +12V |
| 13 | RV5/GV5/BV5 | 2 to +12V |
| 14 | RV4/GV4/BV4 | 2 to +12V |
| 15 | RV3/GV3/BV3 | 2 to +12V |
| 16 | RV2/GV2/BV2 | 2 to +12V |
| 17 | RV1/GV1/BV1 | 2 to +12V |
| 18 | GND | 0 V |
| 19 | DIRX | 0 /15.5V |
| 20 | ENBX1 | 0 to +15.5V(Pulse) |
| 21 | ENBX2 | 0 to +15.5V(Pulse) |
| 22 | DX | 0 to +15.5V(Pulse) |
| 23 | CLX1 | 0 to +15.5V(Pulse) |
| 24 | NCLX1 | 0 to +15.5V(Pulse) |
| 25 | +15.5V | +15.5V |
| 26 | +15.5V | +15.5V |
| 27 | NRG | 0 to +15.5V(Pulse) |
| 28 | CLY | 0 to +15.5V(Pulse) |
| 29 | NCLY | 0 to +15.5V(Pulse) |
| 30 | DY | 0 to +15.5V(Pulse) |

# SECTION 3
# PARTS LIST

## SAFETY PRECAUTION

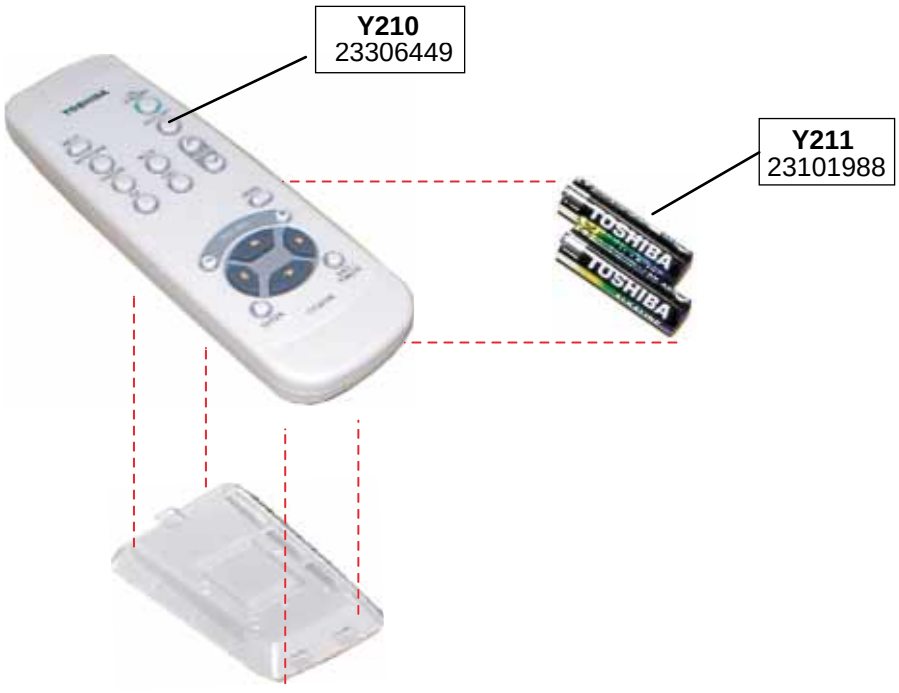
Replace only with part number specified. The mounting position of replacement is to be identical with originals. The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

## NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

## 1. EXPLODED VIEWS

### 1-1. Remote Control Unit



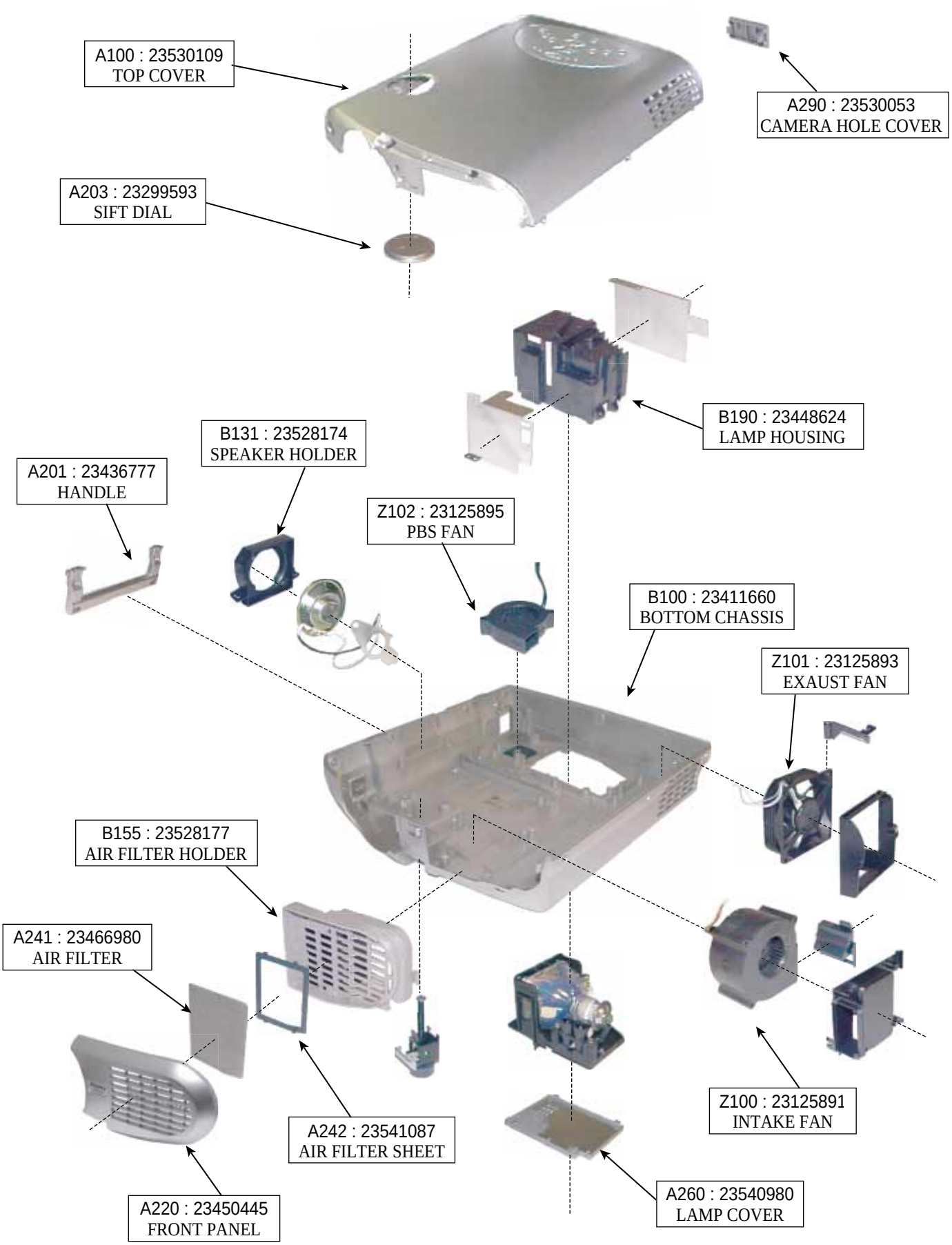
## 1-2. Packing Assembly

## 1-3. Accessories

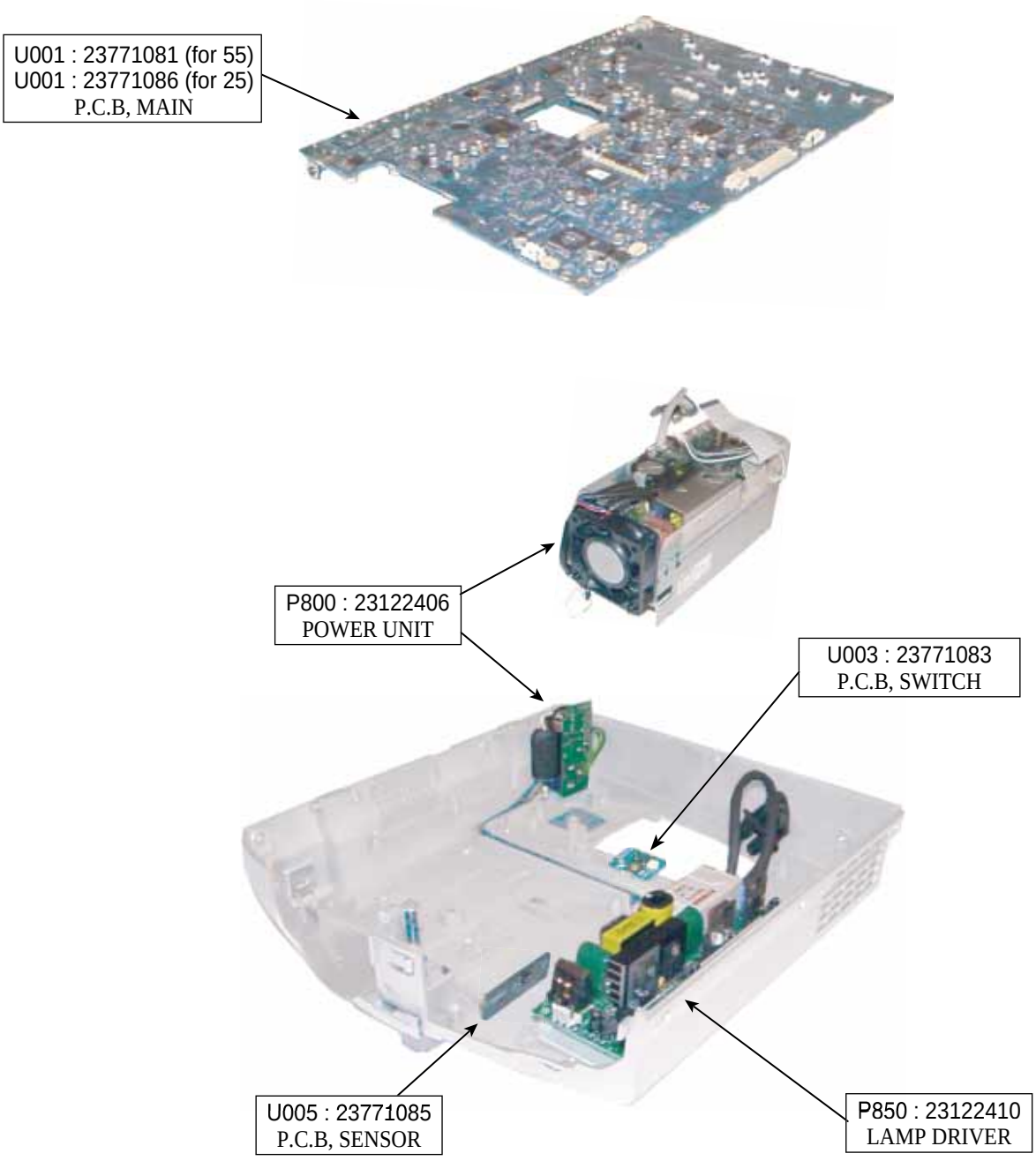
| PARTS NO | SN | FORM |
|---|---|---|
| Y100 | 23368803<br>RGB cable | |
| Y101 | 23368800<br>Video cable | |
| Y102 | 23368798<br>Audio cable for Computer | |
| Y103 | 23368799<br>Audio cable for Video | |
| Y104 | 23368676A<br>Control cable (RS-232C) | |
| Y105 | 23368796<br>USB cable | |
| Y260 | 23372148<br>Power cord (U) | |
| Y260 | 23372169<br>Power cord (UK) | |
| Y260 | 23372167<br>Power cord (E) | |

| PARTS NO | SN | FORM |
|---|---|---|
| Y210 | 23306449 | |
| Y211 | 23101988 | |
| Y200 | 23565503 | |
| Y201<br>Y204<br>Y205<br>Y202 | 23565504<br>23565506<br>23565507<br>23565505 | E/F<br>E-EG<br>E-F/SP<br>U-SPA<br> |
| Y225<br>Y227<br>Y226<br>Y221<br>Y222<br>Y223 | 23589299<br>23589301<br>23589300<br>23589295<br>23589296<br>23589297 | GER<br>ITA<br>POR<br>ENG<br>FRA<br>SPA<br> |
| Y265 | 23448633 | |

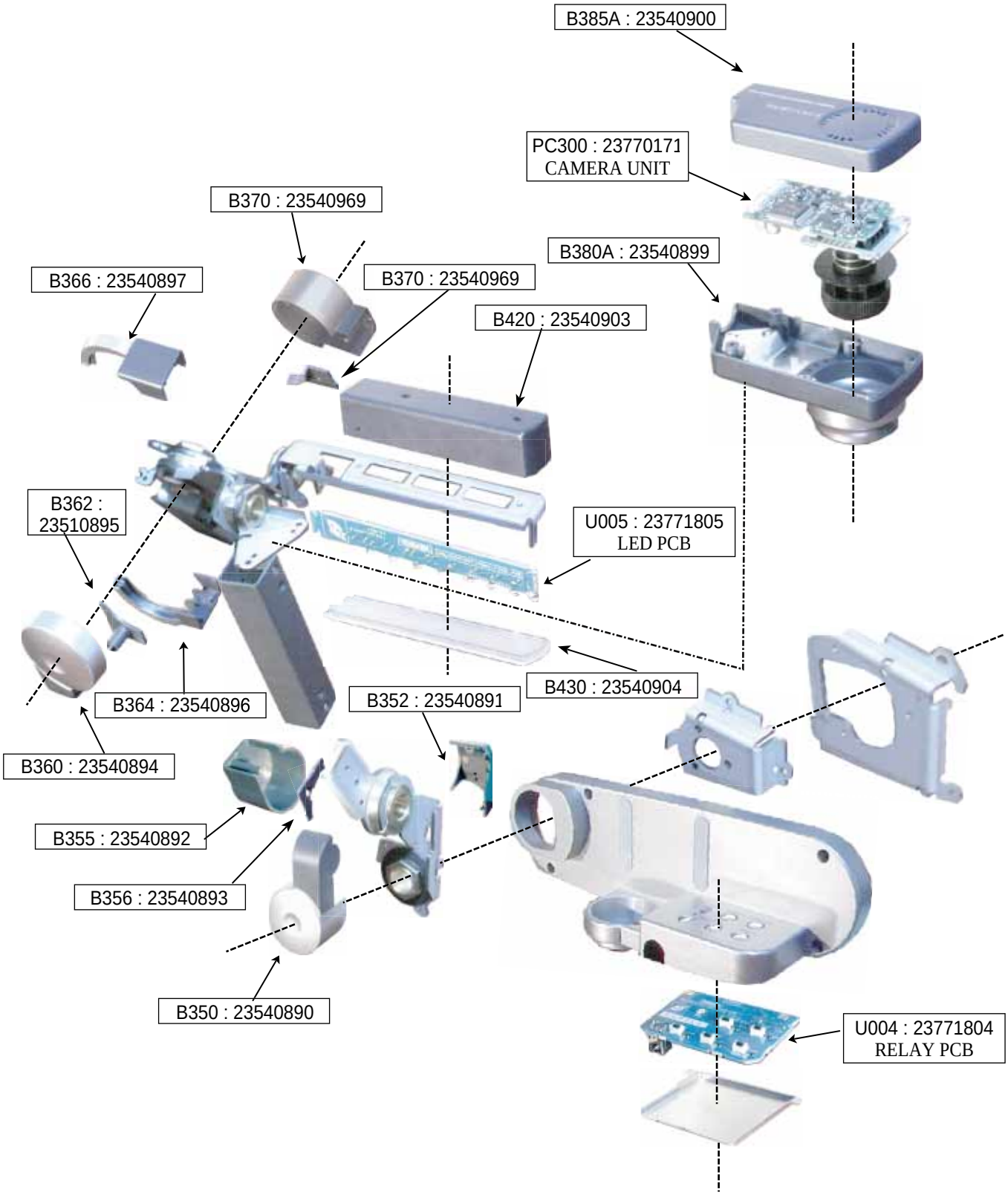
## 1-4. Chassis Assembly



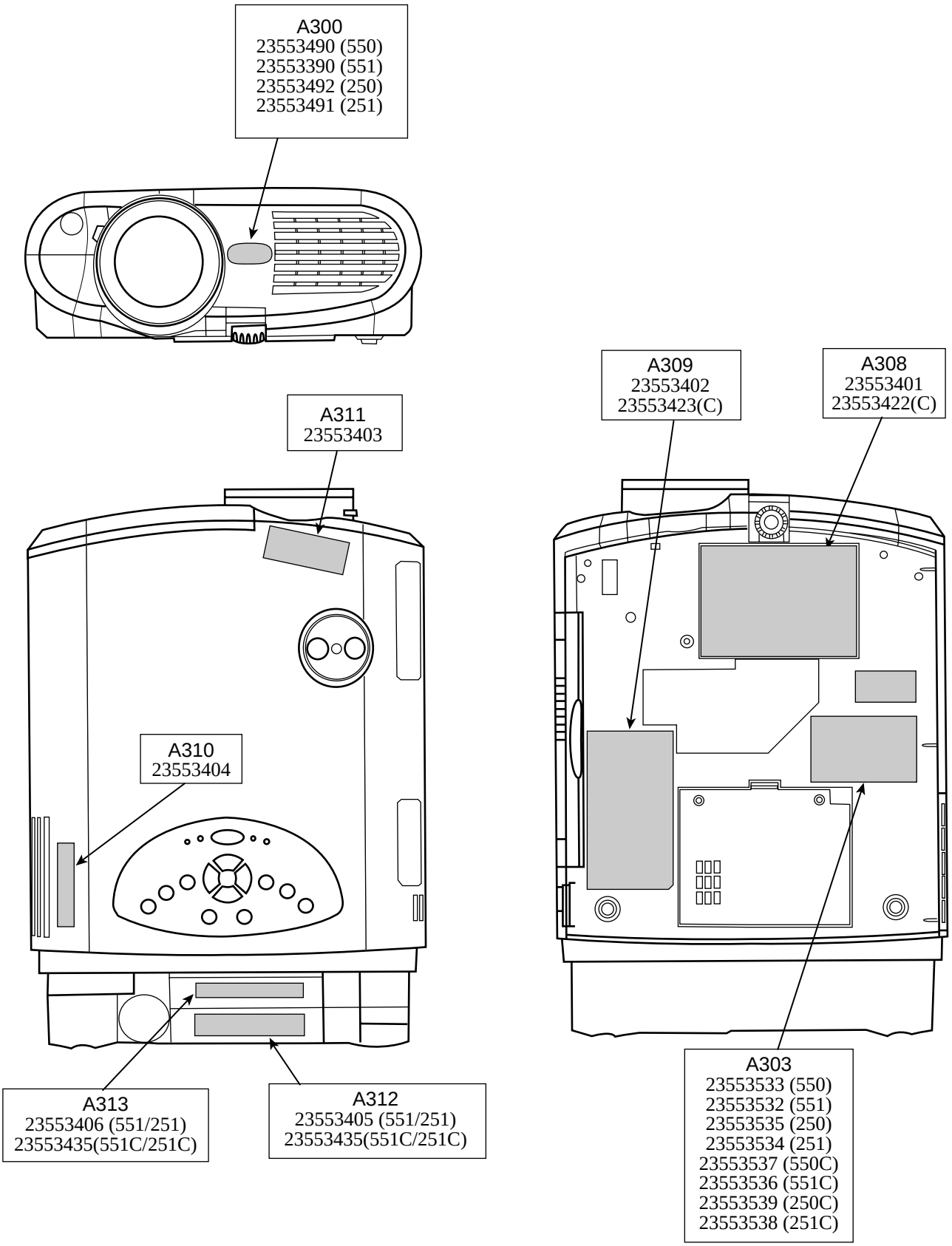
## 1-5. PC Board and Power Unit Assembly



## 1-6. Document Camera Assembly



## 1-7. Labels


A300
23553490 (550)
23553390 (551)
23553492 (250)
23553491 (251)
A309
23553402
23553423(C)
A308
23553401
23553422(C)
A311
23553403
A310
23553404
A313
23553406 (551/251)
23553435(551C/251C)
A312
23553405 (551/251)
23553435(551C/251C)
A303
23553533 (550)
23553532 (551)
23553535 (250)
23553534 (251)
23553537 (550C)
23553536 (551C)
23553539 (250C)
23553538 (251C)

# 2. PARTS LIST

| LOCATION NUMBER | PARTS NUMBER | DESCRIPTION |
|---|---|---|
| | | - MECHANICAL PARTS - |
| A001??? | 23530108 | TOP |
| A100 | 23530109 | TOP COVER |
| A201 | 23436777 | HANDLE |
| A203 | 23299593 | SHIFT DIAL |
| A204 | 23058300 | 2W3SZN |
| A220 | 23450445 | FRONT PANEL |
| A241 | 23466980 | AIR FILTER |
| A242 | 23541087 | AIR FILTER HOLDER |
| A260 | 23540980 | REAR PANEL |
| A270 | 23540982 | LENS CAP |
| A273 | 23553269 | CONNECTOR COVER |
| A300 | 23553390 | FRONT TAG (551) |
| A300 | 23553490 | FRONT TAG (550) |
| A300 | 23553491 | FRONT TAG (251) |
| A300 | 23553492 | FRONT TAG (250) |
| A303 | 23553532 | RATING LABEL (551) |
| A303 | 23553533 | RATING LABEL (550) |
| A303 | 23553534 | RATING LABEL (251) |
| A303 | 23553535 | RATING LABEL (250) |
| A320 | 23553540 | CARTON BOX LABEL (551) |
| A320 | 23553541 | CARTON BOX LABEL (550) |
| A320 | 23553542 | CARTON BOX LABEL (251) |
| A320 | 23553543 | CARTON BOX LABEL (250) |
| A400 | 23064682 | CARTON BOX |
| A403 | 23946296 | PACKING |
| A410 | 22918308 | PARTITION |
| A502 | 23564859 | SHIPPING LABEL(251) |
| B100 | 23411660 | BOTTOM CHASSIS |
| B114 | 23890934 | FOOT BUTTON CAP |
| B131 | 23528174 | SPEAKER HOLDER |
| B153 | 23528175 | INTAKE FAN HOLDER |
| B154 | 23738030 | SCREW BRDT2W 3x47 |
| B155 | 23528177 | FILTER HOLDER |
| B190 | 23448624 | LAMP HOUSING |
| B210 | 23528178 | EXAUST FAN HOLDER |
| B213 | 23035312 | SCREW TTB2W 3x12 |
| B310 | 23540888 | CAMERA COVER ASSEMBLY |
| B320 | 23890922 | CAMERA BASE ASSY |
| B330 | 23890925 | ARM COVER ASSEMBLY |
| B350 | 23540890 | 1ST JOINT COVER M |
| B352 | 23540891 | 1ST JOINT COVER S |
| B355 | 23840892 | 2ND JOINT COVER M |
| B356 | 23540893 | 2ND JOINT COVER S |
| B360 | 23540894 | 3RD JOINT COVER(1A) |
| B362 | 23510895 | 3RD JOINT COVER(1B) |
| B364 | 23540896 | 3RD JOINT COVER(2A) |
| B366 | 23540897 | 3RD JOINT COVER(2B) |
| B370 | 23540969 | 3RD JOINT COVER(3A) |
| B372 | 23540970 | 3RD JOINT COVER(3B) |
| B380A | 23540899 | CAMERA BOTTOM COVER |
| B385A | 23540900 | CAMERA TOP COVER |
| B420 | 23540903 | LED BACK COVER |
| B421 | 70391378 | SCREW PPC-E-2x3 |
| B430 | 23540904 | LED CLEAR COVER |
| B474 | 23723264 | SCREW PP-2.6x4 |
| B475 | 23969946 | TAPE (BLACK) |

| LOCATION NUMBER | PARTS NUMBER | DESCRIPTION |
|---|---|---|
| | | - ELECTRICAL PARTS - |
| P800 | 23122406 | POWER UNIT (APS-175) |
| P850 | 23122410 | LAMP DRIVER (HVP1503DC-3) |
| PC300 | 23770171 | CAMERA UNIT (IKK82LC) |
| U001 | 23771081 | MAIN PC BOARD(550/551) |
| U001 | 23771086 | MAIN PC BOARD(250/251) |
| U002 | 23771082 | SENSOR PC BOARD(550/551) |
| U003 | 23771083 | SWITCH PC BOARD(550/551) |
| U004 | 23771084 | RELAY PC BOARD |
| U005 | 23771085 | LED PC BOARD |
| Y101 | 23368800 | VIDEO CABLE (PIN-PIN 3M) |
| Y103 | 23368799 | AUDIO CABLE (MINI-PINx2 3M) |
| Y210 | 23306449 | REMORT CONTROL UNIT |
| Y230 | 23956341 | NAME TAG (551) |
| Y265 | 233448633 | SOFT CASE |
| Z102 | 23125895 | FAN (D05F-12PH) |
| | | - OPTICAL PARTS - |
| E200 | 23405066 | OPTICAL ENGINE (4C81-20) for 55 |
| E200? | 23405067 | OPTICAL ENGINE (4C81-00) for 25 |
| E201B | 23301417 | LCD PANEL(L3P07X-25G01B) for 55 |
| E201B | 23301423 | LCD PANEL(L3P07S-21G01B) for 25 |
| E201G | 23301416 | LCD PANEL(L3P07X-25G01G) for 55 |
| E201G | 23301422 | LCD PANEL(L3P07S-21G01G) for 25 |
| E201R | 23301415 | LCD PANEL(L3P07X-25G01R) for 55 |
| E201R | 23301421 | LCD PANEL(L3P07S-21G01R) for 25 |
| E292 | 23056500 | SW5SZN |

# SPECIFICATIONS

**Main Unit**

| | TLP550 / 250 | TLP551 / 251 |
|---|---|---|
| Power requirements | AC 100-240V 50/60Hz | |
| Power consumption | 240W (standby:15W ) | 250W (standby:15W ) |
| Mass | 4.2kg | 5.0kg |
| Dimensions | W260mmxH95mmxD295mm | W260mmxH95mmxD352mm |
| Ambient environment | Temperature:0 to 35 cent degree<br>Humidity:30% to 70% HR | |
| Lamp | 160W High pressure Hg lamp | |
| Speaker | 2W (monaural) | |
| RGB INPUT | RGB signal :(D-sub 15pin) | |
| VIDEO INPUT | S-Video signal : Mini DIN-4pin<br>Video signal : 1V(p-p), 75 ohm | |
| CONTROL terminal | Mini DIN-8pin(RS-232C) | |
| Cabinet Material | ABS | |
| Document camera | | 1/2 inches CCD<br>810000 pixels |

**LCD**

| | |
|---|---|
| Projection system | 3-panel transmission |
| Panel size | 1.3 inches |
| Driving system | TFT active matrix |
| Picture elements | 55 : 786,432 pixels (1024x768dits), 25 : 480,000 pixels (800x600dits) |

**Projection Lens**

| | |
|---|---|
| Lens | Zooming lens F=2.02-2.35 f=14.48-17.38mm |
| Focusing | Manual operation |
| Zooming | Manual operation |

**Accessories**

| | |
|---|---|
| Owner's manual | 1 |
| Owner's manual (CD-ROM) | 1 |
| Wireless remote control | 1 |
| Battery | 2 |
| Power cord | 1 |
| RGB cable | 1 (3m) |
| Video cable | 1 (3m) |
| Audio cable for computer | 1 (3m) |
| Audio cable for video | 1 (3m) |
| Control cable | 1 (1.8m) |
| USB cable | 1 (2m) |

The design and specification are subject to change without notice.

Trademarks
Macintoh is a registered trademark of Apple computer, Inc.

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